

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An electronic pen comprising a body (12), a pen stem (14) slidably received in said body (12), and a sensor arrangement (16) whose electrical resistance varies in accordance with the amount of force applied to the sensor arrangement (16) via the pen stem (14), characterized in that wherein the sensor arrangement (16) is designed as a modular unit with an electrode element (41) and a closure element (46) that are mutually arranged in an essentially electrically insulated initial position, that one of said elements (41; 46) is arranged to receive said force from the pen stem (14) and thereby be urged to an activated position in electrical contact with the other element (46; 41), and that, on relaxation of said force, the force-receiving element (41; 46) is arranged to automatically spring from the activated position back to the initial position.

2. (Currently Amended) The electronic pen as set forth in claim 1, wherein the electrode element (41) is integrated with the closure element (46).

3. (Currently Amended) The electronic pen as set forth in claim 1, wherein the force-receiving element (41; 46) is cantilevered in said sensor arrangement (16).

4. (Currently Amended) The electronic pen as set forth in claim 1, wherein said electrode element (41) and said closure element (46) are essentially planar.

5. (Currently Amended) The electronic pen as set forth in claim 1, wherein the sensor arrangement (16) comprises a sheet substrate (36) with a closure area and an electrode area formed thereon, the substrate (36) being bent such that the closure area and the electrode area form said closure element (46) and said electrode element (41), respectively.

6. (Currently Amended) The electronic pen as set forth in claim 1, wherein the closure element (46) is the force-receiving element.

7. (Currently Amended) The electronic pen as set forth in claim 1, wherein the electrode element (41) comprises two electrically separate conductor paths (38, 40) forming an active surface (42) for cooperation with the closure element (46).

8. (Currently Amended) The electronic pen as set forth in claim 7, wherein at least a central surface portion of the active surface (42) has an essentially uniform distribution of said conductor paths (38, 40).

9. (Currently Amended) The electronic pen as set forth in claim 7, wherein the sensor arrangement comprises a spacer (52) of electrically insulating material which, in said activated position, is arranged to at least partly encompass the active surface (42).

10. (Currently Amended) The electronic pen as set forth in claim 1, wherein the closure element (46) includes a semiconducting material.

11. (Currently Amended) The electronic pen as set forth in claim 1, wherein the closure element (46) includes a pressure-sensitive material.

12. (Currently Amended) The electronic pen as set forth in claim 1, further comprising a force-transmitting element (34) which is attached to one end of the pen stem (14) and has a rounded abutment surface (82) for cooperation with the force-receiving element (41, 46).

13. (Currently Amended) The electronic pen as set forth in claim 12, wherein the force-transmitting element (34) is made of an elastic material.

14. (Currently Amended) The electronic pen as set forth in claim 12, wherein the force-transmitting element (34) defines a blind hole (84) which is adapted to receive said one end of the pen stem (14) and whose peripheral wall has at least one longitudinal groove (88).

15. (Currently Amended) The electronic pen as set forth in claim 14, wherein the force-transmitting element (34) comprises an insert (86) which is arranged over the end wall of the blind hole (84) and is made of a hard and durable material.

16. (Currently Amended) The electronic pen as set forth in claim 15, wherein the insert (86) on its surface facing the blind hole (84) is provided with at least one depression (90) that extends from a central portion of said surface and connects to said longitudinal groove (88).

17. (Currently Amended) The electronic pen as set forth in claim 12, further comprising an elongate holder (18) defining a first and a second chamber (54, 56), wherein the sensor arrangement (16) is mounted in the first chamber (54) and the force-transmitting element (34) is slidably received in the second chamber (56) for longitudinal movement into the first chamber (54) against the spring action of the force-receiving element (41; 46).

18. (Currently Amended) The electronic pen as set forth in claim 17, wherein the holder (18) comprises a lug portion (60) which is formed between the first and second chambers (54, 56) to limit the movement of the force-receiving element (41; 46) away from the other element (46; 41).

19. (Currently Amended) The electronic pen as set forth in claim 17, wherein the holder (18) defines a mounting opening (68) which at least partly is defined by flexing sidewall portions

(64) that allow insertion of the force-transmitting element (34) into the second chamber (56) and limit its lateral movement therein.

20. (Currently Amended) The electronic pen as set forth in claim 17, wherein the holder (18) comprises a guiding element (80) for cooperation with a complementary guiding element on the body (12).

21. (Currently Amended) The electronic pen as set forth in claim 17, wherein the electrode and closure elements (41, 46) are interconnected by means of a web portion (48), and wherein the web portion (48) is received in a guiding opening (62) defined in a sidewall portion of the first chamber (54).

22. (Currently Amended) The electronic pen as set forth in claim 17, wherein a contacting opening is defined in a sidewall portion of the first chamber (54), and wherein the electrode element (41) extends from the first chamber (54), through the contacting opening, into abutment against a contacting surface which is formed on the holder (18) for contacting a circuit board (20) arranged in the pen.

23. (Currently Amended) The electronic pen as set forth in claim 21, wherein the contacting opening is arranged opposite to the guiding opening (62).

24. (Currently Amended) The electronic pen as set forth in claim 1, wherein the electrode element (41) comprises a layer of graphite.

25. (Withdrawn) A control device for installation in an electronic pen (10) provided with a pen stem (14) and an associated force sensor (16), comprising a comparator (108) which is adapted to receive an analog measuring signal from the force sensor (16), to compare the analog

measuring signal with a fixed reference signal and, based on the comparison, to issue a digital output signal; a converter (106) which is adapted to receive the analog measuring signal and to convert this into a sequence of digital force values; and a processor (102) which is electrically connected to the comparator (108) and the converter (106) and which is adapted to selectively activate the converter (106), based on the digital output signal from the comparator (108).

26. (Withdrawn) The control device as set forth in claim 25, wherein the processor (102), before activating the converter (106), is adapted to switch from a waiting state with low internal clock frequency to an active state with high internal clock frequency.

27. (Withdrawn) The control device as set forth in claim 26, wherein the processor (102), in its active state, is adapted to at least intermittently activate a position sensor (30) for determination of the position of the pen (10) on a base.

28. (Withdrawn) The control device as set forth in claim 27, wherein the processor (102) is adapted to associate each position with a force value included in said sequence.

29. (Withdrawn) The control device as set forth in claim 26, wherein said processor (102), at least in its waiting state, is adapted to generate said reference signal.

30. (Withdrawn) The control device as set forth in claim 26, wherein the processor (102) is adapted to receive the digital output signal of the comparator (108) on an interrupt port, at least during the waiting state.

31. (Withdrawn) The control device as set forth in claim 25, wherein the comparator (108) and the converter (106) are realised as a first and a second operation mode, respectively, of a programmable analog-to-digital converter.

32. (Withdrawn) A method of controlling an electronic pen (10) based on an analog measuring signal from a force sensor (16) associated with a pen stem (14) of the pen (10), comprising the steps of comparing the analog measuring signal with a fixed reference signal, and selectively, based on the comparison, initiating an analog-to-digital converter to convert the analog measuring signal to a sequence of digital force values.

33. (Withdrawn) The method as set forth in claim 32, wherein the force sensor (16) has non-linear force characteristics over an extensive force range, comprising the step of controlling, based on the size of the analog measuring signal, the conversion to one of at least two given conversion ranges which each correspond to a subrange of said force range.

34. (Withdrawn) The method as set forth in claim 33, wherein the step of controlling the conversion comprises automatically shifting the analog-to-digital converter between at least two given voltage ranges which each correspond to a subrange of said force range when the analog measuring signal reaches given switch points.

35. (Withdrawn) The method as set forth in claim 33, wherein the measuring signal is generated as a potential difference over the force sensor (16) which is driven by a constant current generator (100), and wherein the step of controlling the conversion comprises automatically switching, once the analog measuring signal reaches given switch points, the constant current generator (100) between at least two currents, which each result in analog measuring signals, that correspond to a given subrange of said force range, falling within the voltage range of the analog-to-digital converter.

36. (Withdrawn) The method as set forth in claim 35, wherein said at least two given currents are selected so that the analog measuring signal in each switch point after switching of the constant current generator (100) is different from any other switch point.